

REMARKS

The Applicant appreciates the time taken by the Examiner to review the Applicant's present application. This application has been carefully reviewed in light of the Examiner's comments, including the Office Action mailed September 12, 2007. The Applicant respectfully requests reconsideration and favorable action in this case.

Summary of rejections and amendments

The Examiner previously rejected claims 1-5, 8-17 and 20-24 under 35 U.S.C. 102(e), and claims 6, 7, 18 and 19 under 35 U.S.C. 103(a). The Applicant has amended claims 7 and 19. Claims 1-24 are therefore pending in the application.

Rejections under 35 U.S.C. §102

Claims 1-5, 8-17 and 20-24 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,498,531 ("Ulrick"). The Applicant respectfully traverses this rejection.

In order to anticipate a claim, the reference must teach every element of the claim. The elements must be arranged as required by the claim, and must be shown in as complete detail as is contained in the claim. M.P.E.P. 2131. The Applicant respectfully submits that the Ulrick reference fails to disclose the elements of the claims, as arranged in the claims, and in as much detail as is contained in the claims. Ulrick therefore fails to anticipate the claims.

In regard to claim 1, the Examiner states that Ulrick discloses a detector configured to detect a clipping condition and a signal processor continued to receive a feedback signal from the detector, where the signal processor modifies an audio signal in response to the feedback. The Examiner indicates that the detector is disclosed by the sensors of figure 3, and that the clipping condition which is detected is disclosed by "over current or over voltage". While the sensors of Ulrick may detect over-current or over-voltage conditions, the Applicant points out that these conditions are entirely different from clipping conditions. "Clipping", as used in the application, refers to the truncation of a waveform so that it does not exceed a range of allowable quantized values (see, e.g., paragraphs 0006, 0007). "Over-current", on the other hand, refers to an output current level that is too high (col. 8, lines 38-45), irrespective of the shape of an audio input waveform that might be causing the current to be too high. "Over-voltage", particularly in the case of Ulrick, refers to the levels of positive and negative rail voltages of a power supply (col. 8, lines 55-59), which have nothing to do with an audio input waveform. Thus, the disclosure of over-current and over-voltage detection does not teach or in any way suggest the detection of clipping in an audio signal as recited in the claim. Further, in

the absence of any teaching regarding the detection of clipping, Ulrick cannot teach the modification of an audio signal based upon such clip detection.

The Applicant reminds the Examiner that, if the Examiner believes the disclosure of clip detection is inherent in the system of Ulrick, it is the Examiner's obligation to show that this is necessarily present in the reference, rather than merely being a possibility (M.P.E.P. 2112). If the Examiner fails to provide a basis in fact and/or technical reasoning to show that clip detection is necessarily inherent in the disclosure of Ulrick, the assertion that this limitation is taught by the reference is merely impermissible speculation.

Claim 13 recites a method which includes limitations similar to those of claim 1. The Examiner rejects claim 13 for reasons analogous to those set forth in the rejection of claim 1. The Applicant therefore reasserts the arguments set forth above with respect to claim 13. Because, as explained above, Ulrick fails to disclose detecting clipping conditions (or to disclose clipping at all) and further fails to disclose that an audio signal is modified in response to detecting clipping, Ulrick fails to anticipate claim 13.

Because dependent claims 2-5, 8-12, 14-17 and 20-24 depend from and include all the limitations of either claim 1 or claim 13, these claims are patentably distinguished from Ulrick for the same reasons set forth above in regard to claims 1 and 13. Claims 2-5, 8-12, 14-17 and 20-24 also include additional limitations that further distinguish these claims from the Ulrick reference.

For example, regarding claim 2, which recites the limitation that modification of the audio signal is variable, the Examiner states that Ulrick discloses "variable length of time as needed". Ulrick discloses that its system is turned off if there is an over-current or over-voltage condition (see col. 8, line 59). The Applicant assumes that the Examiner is referring in the rejection to the possibility that the system may remain turned off for a variable amount of time. As a technical matter, the Applicant points out that Ulrick does not disclose that the system turns itself back on after it turns itself off, so there is no disclosure of a variable modification in the reference itself. To the extent that the Examiner assumes that the system will be turned back on, the Applicant points out that turning off Ulrick's amplifier is not a modification of the audio signal. When the amplifier ceases operation, it can not possibly operate to modify an audio signal as claimed. The Applicant respectfully submits that interpreting variable modification of the audio signal to include turning off the amplifier is not reasonable, keeping in mind that the interpretation of the claim language should be made in light of the specification (see, e.g., 0042, 0048), as it would be understood by a person of ordinary skill in the art of the invention (M.P.E.P. 2111).

Regarding claim 3, the Examiner states that Ulrick discloses a noise shaper (citing "power amp figure 1, item 200") where the detector is configured to detect clipping in the noise shaper. Noise shapers are described in the specification at paragraphs 0006 and 0032 as components which quantifies received audio data and shift quantization noise out of the audio band. Item 200 of Ulrick is not a noise shaper, but is instead a power switching section of the amplifier (figure 1, col. 2, lines 17-18). There is no disclosure whatsoever in Ulrick suggesting that switching section 200 functions as a noise shaper, so this limitation clearly is not disclosed by the reference. Further, because no noise shaper is disclosed in Ulrick, this reference cannot teach that a clipping condition within such a component can be detected.

Regarding claim 5, the Examiner states that Ulrick discloses a signal processor configured to modify an audio signal by clipping the audio signal (citing "maximum voltage given by reference of figure 3"). In fact, no clipping is disclosed or even suggested by figure 3. The Applicant points out that figure 3 does not even set a maximum voltage for the audio signal -- it instead set a maximum voltage for the power supply rails. Even if this could be considered the same as limiting an audio signal voltage, the disclosed system clearly would not modify the signal by clipping it, but what instead turn off the amplifier (note that the lower portion of figure 3 is identified by the label "OVER VOLTAGE TURN OFF").

Regarding claim 8, the Examiner states that Ulrick discloses a filter configured to filter the feedback signal produced by the clip detector (citing col. 8, line 66 through col. 9, line 3). The cited portion of the reference clearly states that "the output current is low pass filtered", referring to the output of switching section 200. The output of the switching section is clearly not a feedback signal from a clip detector, so Ulrick fails to disclose the limitation of claim 8.

Regarding claim 9, the Examiner states that Ulrick discloses that the feedback filter is a counter which is incremented and reset as recited in the claim (citing "figure 3, counter in upper right hand corner). The Applicant first points out that Ulrick contains no disclosure indicating that the counter of figure 3 is incremented and reset as recited in the claim. There is nothing in the figure itself indicating such operation, and the word "counter" only appears twice in the text of the reference -- neither of which refers to the counter in the upper right hand corner of the figure. Even if this counter could be considered a filter (which the Applicant submits would be unreasonable), the counter indicated by the Examiner does not receive the maximum voltage signal which is asserted by the Examiner to be the detector feedback signal, so it would not be filtering the clip detector feedback signal as recited in the claim.

Regarding claim 10, the Examiner states that Ulrick discloses that a clip filter is configured to assert a filtered output signal when the filters counter reaches a threshold level

(citing "dip 52"). Figure 3, however, clearly states that dip 52 is used to supply a bias to adjust a current limit threshold in Ulrick's modulator. This has nothing to do with filtering a clip protection feedback signal, and is quite different from asserting an output signal when a filter counter reaches a threshold level. Ulrick therefore fails to disclose the limitation of claim 10.

Regarding claim 11, the Examiner states that Ulrick discloses a flag circuit configured maintain an asserted feedback signal until the flag circuit is reset (citing "maintain 'over current' condition until drive signal is in safe condition"). The Applicant points out again that Ulrick discloses no clip detection, no feedback signal based on detected clipping, and no subsequent processing of such a feedback signal, including maintaining assertion of the feedback signal through the use of a flag circuit. Thus, Ulrick fails to disclose the limitations of claim 11.

The Applicant notes that the method claims have limitations similar to the system claims discussed above, and that the method claims are patentably distinguished from Ulrick for the same reasons set forth above.

Because the Examiner has failed to show that Ulrick discloses all of the elements of claims 1-5, 8-17 and 20-24, the Examiner has failed to establish a prima facie case of anticipation in accordance with M.P.E.P. 2131. The Applicant therefore respectfully requests that the rejection of the claims be withdrawn.

Rejections under 35 U.S.C. §103

Claims 6, 7, 18 and 19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ulrick in view of U.S. Patent No. 5,528,695 ("Klippel"). The Applicant respectfully traverses this rejection.

In order to establish a prima facie case of obviousness under 35 U.S.C. 103, three basic criteria must be met. The prior art references must teach or suggest all the claim limitations, there must be some suggestion or motivation to combine the references, and there must be a reasonable expectation of success. M.P.E.P. 2143. The Applicant respectfully submits that at least one of these criteria – teaching or suggesting all of the claim limitations – has not been met.

As to claim 6, the Examiner states that Ulrick does not expressly disclose the use of compression, but that Klippel discloses compression of an audio signal, citing the figure 4, item 34. Item 4 of Klippel is identified an attenuation element (col. 6, lines 7-16). While this does teach the modification (attenuation) of an audio signal, the Applicant points out that there is no disclosure in Klippel regarding the detection of clipping conditions, generation of a feedback signal by a clip detector, or modification of an audio signal in response to such feedback. As

explained above, Ulrick also fails to disclose these limitations. Because Ulrick and Klippel fail to teach all the limitations of claim 6, the Examiner has failed to establish a prima facie case of obviousness in accordance with M.P.E.P. 2143.

As to claim 7, the Examiner states that Klippel discloses modification of an audio signal by compressing only a portion of the signal that exceeds a threshold level (citing col. 6, line 24). In fact, col. 6, lines 21-25 of Klippel state:

"However, a broadband loudspeaker system requires a filter with controllable transfer characteristic (e.g., high-pass with variable cut-off the frequency) to attenuate only the amplitude of the frequency components which contribute to the resulting displacement."

The Applicant respectfully submits that the attenuation of selected frequency components is not the same as their side limitation of compressing only a portion of the signal that exceeds a threshold level. As explained in the specification at paragraph 0047, and as shown in figure 5, exceeding a threshold level refers to the amplitude level of the audio signal. The attenuation disclosed by Klippel is performed according to the frequencies of the signal components, and not according to the (amplitude) level of the signal. In order to clarify this distinction, the Applicant has amended claim 7 to include "amplitude" before level.

As to claims 18 and 19, these claims have limitations similar to those of claims 6 and 7, and are rejected by the Examiner for the same reasons. The Applicant therefore reasserts the arguments set forth above in regard to claims 6 and 7 with respect to claims 18 and 19.

For at least the foregoing reasons, the Applicant respectfully submits that the combination of Ulrick and Klippel fails to disclose all of the limitations of claims 6, 7, 18 and 19. Consequently, the Examiner's rejection of these claims based on Ulrick and Klippel fails to establish a prima facie case of obviousness as required by M.P.E.P. 2143. The Applicant therefore requests that the rejection of claims 6, 7, 18 and 19 under 35 USC 103 be withdrawn.

Articulation of rejection

The Applicant respectfully points out that the goal of examination is to clearly articulate any rejection so that the Applicant has the opportunity to provide evidence of patentability and otherwise reply completely (M.P.E.P. 706). The particular part of the prior art references relied on in the rejections must be designated as nearly as practicable, and the pertinence of each reference, if not apparent, must be clearly explained (M.P.E.P. 706, citing 37 CFR 1.104).

The Applicant respectfully submits that the Examiner's citations to such things as "over current or over voltage", "sensors of figure 3", "logic of figure 3", etc. fail to clearly point out the particular parts of the references relied upon in rejecting each claim. Furthermore, the

Examiner has provided no explanation of the pertinence of the citations to the limitations of the claims. Such explanation is particularly important in cases such as this, where the relevance of the citations is not apparent. For example, in addressing the limitation of detecting clipping conditions, the Examiner indicates that Ulrick discloses "over current or over voltage" -- it is not at all apparent how this is relevant to detecting clipping conditions, especially since Ulrick does not mention clipping anywhere in its disclosure.

Because the Examiner has failed to clearly articulate the rejections (i.e., identify the particular parts of the prior art references upon which the rejections are based and explain the relevance of these parts of the references). The Applicant respectfully submits that the Examiner has failed to comply with M.P.E.P. 706. To the extent that the rejections have not been clearly articulated, the Applicant does not have sufficient information to respond more completely to the rejections than as set forth above.

Interpretation of claim language

As noted above, the Applicant disagrees with the Examiner's interpretation of the claim language. For instance, the Applicant disagrees that the language "clipping condition" reads on the over-current and over-voltage related disclosure of Ulrick. The Applicant is aware that the Examiner should give the claim language its broadest reasonable construction, but the Applicant reminds the Examiner that the determination of the broadest reasonable construction must be made in light of the specification as it would be interpreted by one of ordinary skill in the art (M.P.E.P. 2111).

References of record but not relied upon

The Examiner does not rely on the references previously disclosed by the Applicant in the rejections. The Applicant's review of these references does not reveal any disclosure which is sufficient to remedy the shortcomings of the references upon which the Examiner relies. The Applicant therefore submits that the claims are allowable over these references as well as the cited references.

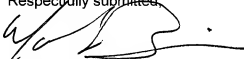
Conclusion

The Applicant has now made an earnest attempt to place this case in condition for allowance. Other than as explicitly set forth above, this reply does not include an acquiescence to statements, assertions, assumptions, conclusions, or any combination thereof in the Office Action.

For at least the foregoing reasons, the Applicant respectfully requests allowance of all claims pending in the application. The Examiner is invited to telephone the undersigned at the number listed below for prompt action in the event any issues remain.

If any extensions of time are necessary to prevent the above referenced application from becoming abandoned, the Applicant hereby petitions for such extensions. If any fees are inadvertently omitted, or if any additional fees are required, or if any amounts have been overpaid, please appropriately charge or credit those fees to Deposit Account No. 50-3085 of the Law Offices of Mark L. Berrier.

Respectfully submitted,



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